DOCUMENT RESUME

ED 109 016 SO 008 442

AUTHOR Fisher, Andrew A.; And Others
TITLE Training Teachers in Population Dynamics: A Preliminary Evaluation of the Urban Life-Population Education Institutes in Baltimore.
INSTITUTION Johns Hopkins Univ., Baltimore, Md. Dept. of Population Dynamics.; Planned Parenthood Association of Maryland, Baltimore.
SPONS AGENCY Rockefeller Foundation, New York, N.Y.
PUB DATE 7 Feb 74
NOTE 23p.; A paper presented at the Annual Meeting of the World Population Society (First, Washington, D.C., February 7, 1974)

EDRS PRICE MF-$0.76 HC-$1.58 PLUS POSTAGE
DESCRIPTORS Curriculum Development; *Demography; Elementary Secondary Education; *Institutes (Training Programs); *Population Education; Population Trends; Program Descriptions; Program Evaluation; Teacher Education; Teacher Improvement; *Teacher Workshops; *Urban Environment; Urban Population

ABSTRACT

This paper describes a series of Urban Life-Population Education workshops held for city school teachers in Baltimore, Maryland. The workshops introduced teachers to basic demographic concepts and statistical techniques, provided the teachers with a knowledge base as a prerequisite for meaningful discussions of population issues, related problems of urban living to population processes, and developed curriculum materials suitable for teaching population education in grades K through 12. An evaluation of the program showed that teachers' knowledge of selected demographic concepts and facts increased between the pre-workshop period and the post-workshop period. High school teachers showed greater effective change in knowledge than lower grade teachers, although there remained widespread interest in population education among all teachers. The original program schedule was modified two times during the course of the workshop resulting in fewer formal presentations, more teacher discussions, and greater teacher involvement in the workshop program. (Author/DE)

****
* Documents acquired by ERIC include many informal unpublished *
* materials not available from other sources. ERIC makes every effort *
* to obtain the best copy available. nevertheless, items of marginal *
* reproducibility are often encountered and this affects the quality *
* of the microfiche and hardcopy reproductions ERIC makes available *
* via the ERIC Document Reproduction Service (EDRS). EDRS is not *
* responsible for the quality of the original document. Reproductions *
* supplied by EDRS are the best that can be made from the original. *
****

ED109016

JUN 9 1975

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION
THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

TRAINING TEACHERS IN POPULATION DYNAMICS: A PRELIMINARY EVALUATION OF THE URBAN LIFE-POPULATION EDUCATION INSTITUTES IN BALTIMORE[1]

Andrew A. Fisher, Lawrence W. Green,
Lester McCrae, and Caroline Cochran[2]

Presented at the

First Annual Meeting of
The World Population Society

Washington, D.C.

February 7, 1974

---

[1]This study was supported by a grant from the Rockefeller Foundation to the Planned Parenthood Association of Maryland, with a subcontract for evaluation to the Department of Population Dynamics, Johns Hopkins University School of Hygiene and Public Health.

[2]Andrew Fisher is a doctoral candidate in population dynamics and health education and Lawrence W. Green is Associate Professor of Public Health Administration, Population Dynamics, and Behavioral Sciences at the School of Hygiene and Public Health, Johns Hopkins University, 615 N. Wolfe Street, Baltimore, Maryland 21205. Mr. McCrae is the Director and Mrs. Cochran the Coordinator of the Urban Life-Population Education Institute respectively for the Baltimore City School District and the Planned Parenthood Association of Maryland, Inc.

SP 008 443

00002

TRAINING TEACHERS IN POPULATION DYNAMICS: A PRELIMINARY EVALUATION OF THE URBAN LIFE-POPULATION EDUCATION INSTITUTES IN BALTIMORE

Introduction

During the 1972-73 academic year, a series of Urban Life-Population Education workshops were held for city school teachers in Baltimore, Maryland. The purposes of the workshops were to introduce teachers to basic demographic concepts and statistical techniques, to provide the teachers with a knowledge base as a prerequisite for meaningful discussions of population issues, to relate problems of urban living to population processes, and to develop curriculum materials suitable for teaching population education in grades K through 12.

Nine workshops were conducted, each lasting three days and attended by approximately 30 primary and secondary public school teachers. The program was funded by the Rockefeller Foundation and administered by the Baltimore Public Schools in collaboration with the Planned Parenthood Association of Maryland.

The discussion of this program will describe first, the population education program as it was originally conceived and subsequently changed as experience was gained; and second, findings of a longitudinal, evaluative study of the teacher-participants, focusing on the results of pre- and post-workshop questionnaires, and comparing the results of different training models employed.

DESCRIPTION OF THE PROGRAM

Background

In recent years, population education has drawn increasing attention and recognition as an important field of study at both primary and secondary school levels. The importance of this subject area was given formal support by the President's Commission on Population and the American Future. The Commission recommended, "the enactment of a Population Education Act to assist school systems in establishing well-planned population education programs so that present and future generations will be better prepared to meet the challenges arising from population change."[1] This recommendation echoes an earlier one made by a special UNESCO committee which suggested that population matters be introduced into the curricula at both the primary and secondary level, "so that the next generations are better informed, particularly teachers who serve not only as educational leaders of their communities but as social leaders as well."[2]

Several countries, notably Colombia, have already started developing curriculum materials appropriate for nationwide use. In the United States, a number of innovative programs have been tried by various university-based groups.[3]

Despite this activity, population education has not been fully understood nor widely supported by school systems. From our experience in Baltimore, we find that population education is most often misconceived to be sex education by a different name, family planning in a subtle form, or birth control information masquerading as demographic studies. While it is true that these areas are sometimes included as

part of population education, it is also true that they need not constitute the core of a study unit.[4] Indeed, from the very practical standpoint of acceptance by a school system, population education programs might do well to exclude or at least de-emphasize sex related materials.

If misunderstanding is one problem, yet another, mentioned by Wayland, is the paucity of well-established models from which to draw for experience.[5] We are still at the early stages in the adoption of this innovation and while there have been a few highly enthusiastic, ready acceptors, the early majority has probably not yet passed the interest stage. This paper presents selected findings on the impact of two models for population education.

Content of the Workshops

The Baltimore Urban Life-Population Education Institutes (ULPEI) were based upon several principles: (1) Education in population processes can and should occur at all grade levels from K through 12. Thus the workshops included elementary, junior high and senior high school teachers. (2) While population education is a most appropriate unit of study in such courses as social studies, history or geography, it also can be integrated into most other courses. Thus, all teachers in the school system were given the opportunity to receive training in population education regardless of their particular subject area. (3) As noted by Stephen Viederman, "Population education is meant to educate, not to propagandize or indoctrinate. It views population not as a 'problem' to be solved but a 'phenomenon' to be understood."[6]

We accepted Viederman's definition of population education as, "the process by which the student investigates and explores the nature and meaning of population processes, population characteristics, the causes of population changes, in addition to the consequences of these processes, characteristics, and changes for himself, his family, his society and the world."[7]

The First Model. While the principles of the program and the definition of population education provided conceptual guidance, they were of little assistance in planning the specific activities for each workshop. In retrospect, the schedule for the first three workshops was ambitious in its attempt to introduce teachers to a multitude of issues related to population processes and pedagogical in its approach to teacher training.

For three days, the teachers discussed as a group the many facets of population education and listened as twelve locally drawn community leaders related demographic concepts to such subjects as urban crowding, housing, transportation, recreation and land use, urban-suburban migration, quality of medical care, poverty, welfare and unemployment, inner city decay, racism and Black genocide. After each of these areas was presented, three "resident experts," representing local, national, and international viewpoints respectively, made further comments and answered questions. It is hardly surprising that at the end of each workshop, many teachers stated that three days was simply not enough time.

Changes in the Workshop Schedule: The Second Model. By the end of the third workshop, it appeared that the program schedule should be reorganized. One change was the removal of the three resident experts from the program. Besides reducing costs considerably, this change also created more time for active teacher involvement in discussions. A second change and one that greatly facilitated these discussions was to break the larger group into sub-groups after panel presentations by guest speakers. The speakers were then rotated among these sub-groups for informal discussions.

Nevertheless, while these changes helped to produce lively debates among the teachers, many of the issues debated were only tangentially related to population education. Also, some of the teachers remained passive observers and failed to become actively involved in the workshop program.

The Third Model. Reviewing these problems, a final series of changes were made in the schedule beginning with the sixth workshop. The guest speaker list was cut from twelve to six and the time created was devoted to teacher projects. During the morning of the first day, elementary concepts and methods of demography were introduced. Then, small groups of teachers were given specific work assignments. One group might be asked to plot a growth curve of Baltimore's population, another group would calculate crude birth and death rates, and yet another group would contrast the growth in population of Maryland with that of the United States. When these projects were completed, the teachers were reassembled and each small group would explain what they had done, how they had done it and what it meant. The projects and the

discussions of them insured the active involvement of all teachers in the workshop program and led to a better understanding of population processes.

On the last day of each workshop, the teachers were again broken into small groups and asked to design projects for their students that would most appropriately explain one or more demographic concepts. Puzzles, games, riddles, songs, pictures, and posters were some of the imaginative results of this exercise.

CURRICULUM MATERIALS

The final product of the program was the curriculum unit written and designed by the teachers. During the summer of 1973, nine teachers worked on the curriculum. Three units of study were produced for the elementary school level and six units for the high school level.

Although designed primarily for the social studies curriculum, the elementary school units can also be used in mathematics, science, English and even poetry and music. The units contain games, pictures, puzzles and records.

For high school students, six self-contained units were produced. Each unit develops one basic concept. The six can be used together for a one-semester course in population education or separately in mathematics, biology, English, home economics or life sciences. In addition, programed instruction packages were developed to allow students to work independently and at their own speed.

EVALUATION OF THE PROGRAM

Design

The evaluation was undertaken to quantify the effect the population

education program had on the teachers' knowledge of selected demographic concepts and facts. The study employed an experimental, longitudinal design with random assignment of teachers into one of the nine workshops and multiple pre- and post-workshop observations. This design is depicted on Appendix A.[8]

While all teachers were given a post-workshop questionnaire to complete, teachers in workshops four through nine were also given a mailed pre-workshop questionnaire. Because of this design and the changes made in the program schedule, most of our analysis of the data compares workshops one through three as a group, with four through six as a second group, and seven through nine as a third group.

Characteristics of the Teachers

Table 1 presents a summary profile of the 263 teachers on which data were collected. It is noteworthy that the distribution by "Grades Presently Teach" is fairly even and the range of "Subjects Teach" is wide. Both of these facts are an indication that interest in population education is not limited to high school teachers of history or social studies. Also, it can be seen that the program attracted teachers both young and old with varying years of experience. This is encouraging and a suggestion that population education is of some concern to teachers at all levels and not just those who are young and recently graduated from college.

Findings

Overall Changes in Knowledge. Although considerable factual information was presented to all teachers, the selection of this information and the emphasis on it often differed from workshop to workshop.

Nevertheless, certain basic knowledge areas were always covered and can be considered constants throughout the program. The five questions listed in Table 2 and used to measure knowledge changes were presented and discussed at each workshop. This table compares the pre-test scores on these questions against the immediate post-test scores for teachers in workshops four through nine. For all five questions, there were statistically significant changes ($P \leq .02$) in the expected direction. Thus for those teachers given both a pre- and post-test, the program appears to have increased knowledge levels. A non-parametric chi-square test appropriate for "before-after" situations in which each individual is used as his own control was used to test for statistical significance of changes.[9]

Comparison of Training Models. While the changes noted above are important as overall measures of the program's impact, they do not reveal the effect, if any, the revisions in the program schedule had on the teachers' grasp of basic knowledge items. Since the revisions in the program schedule were made at the end of the third and the sixth workshops, for purposes of analysis, we have trichotomized the data and compared pre-test scores against post-test scores for each grouping. For workshops one through three, which were not give a pre-test, the aggregate pre-test score of workshops four through nine were used as a baseline measure. In addition, for each workshop grouping, an index of effective change was computed as follows:

$$\text{Effectiveness Index (EI)} = \frac{P_2 - P_1}{100 - P_1} \times 100$$

This measure compares the actual changes in percentages of respondents

who were correct in their answers on the pre-test and the post-test as a proportion of the "potential changes." The numerator of the EI represents actual changes that occurred and the denominator the potential changes. Thus if 99 out of 100 respondents answer a question correctly on the pre-test and all 100 answer correctly on the post-test, the EI is 100. On the other hand, if only 50 out of 100 answer correctly on the pre-test and 70 on the post-test, the EI is only 40, even though 20 persons changed their responses in the second example and only one changed in the first example.

Controlling for workshop attended, Table 3 shows the effective change in knowledge of the teachers. Our interest in this table is not with any one question but with patterns or consistent trends. In general, it appears that teachers in workshops one through three tended to score lower, that is, showed less effective change, than the teachers in the other workshops. Conversely, teachers in workshops seven through nine showed the greatest effective change. This finding provides some empirical support to our belief that the revisions in the program schedule resulted in a more meaningful training session for the teachers. By reducing the number of guest speakers and involving the teachers in work projects, demographic concepts and statistics became clearer and were understood by more teachers.

Comparison by Grade Level of Teachers. Table 4 is similar to Table 3 except that different "Grade Levels of Instruction" are compared instead of "Workshop Attended." Comparing the EI scores of teachers at different grade levels, it appears that the workshop program had a greater effect on high school teachers of grades 10 through 12 than on other teachers. We caution, however, against concluding on the basis

of this finding that programs in population education should be directed only towards teachers of high school students. On the contrary, as already noted, the interest in population education by lower grade teachers is high as indicated by the number who applied and attended the workshops. That as a group these teachers were less responsive to certain measures of program effectiveness is probably related to the inadequacy of the measures themselves and/or the inappropriateness of various aspects of the workshop program for them. Lower grade teachers may have an intellectual interest in knowing about population processes or in how to calculate a growth rate from raw data, but they may find little practical use for such knowledge in the classroom.

If workshop programs such as the one described here are to be held in the future, it may be necessary to conduct separate sessions for teachers at different grade levels. Yet another approach might be to assemble all teachers for general lectures and orientation, but then separate them into grade specific groups for discussions and work assignments. In either approach, the emphasis at some point would be on bringing together teachers who have a grade level in common and thus, presumably, similar interests and problems.

Sustained Effects on Knowledge and Teaching Practices. The design of the evaluation called for a second post-workshop questionnaire. This questionnaire was mailed to all teachers during the summer of 1973 and returned by 73 percent of them.

Table 5 compares the pre-test, the immediate post-test and the second post-test scores of all teachers irrespective of workshop attended or grade level. It should be noted that since the workshops were held over nine months, the period of time between any given workshop

and the second post-test ranges from one to eight months. Thus teachers in the first workshop had almost a full academic year to use the training they received, while those in workshop nine had barely a month.

The results of the second post-test are generally favorable and reveal that most teachers retained a substantial portion of the factual information they received in the workshops. On three out of the five knowledge questions, the second post-test scores are approximately the same as the immediate post-test scores. On questions 2 and 4, however, there was a regression back to the knowledge levels of the pre-test. This type of regression or lack of retention is not unusual, particularly with factual items. To expect that a three-day workshop can have a lasting effect on numerous knowledge items is unrealistic. Indeed, it is encouraging that the teachers retained as much as they did.

In the area of behavior change, the program appears to have had some effect. On the pre-test, 22 percent of the teachers stated that they frequently devoted some block of time in their teaching to a discussion of population pressures in the world. On the second post-test, 40 percent claim that they now devote frequent time to a discussion of this topic. This may be a conservative figure in that the teachers in the last few workshops had very little time to discuss population issues in the classroom before the school year ended.

Finally, in the area of attitude change, the workshop program seems to have had only a minor effect. From a list of nine problem areas facing the United States, 30 percent of the teachers ranked "population" as either 1 or 2 on the pre-test. On the immediate post-test, this

percentage rises to 43 but then drops to 37 percent on the second post-test. Thus there was only a temporary change in attitudes on this question.

A similar and temporary change in attitudes can be seen with question 7. At the time of the pre-test, 45 percent of the teachers believed that students should be exposed sometime before they graduate from high school to discussion of methods of family planning. However, on the immediate post-test this percentage drops to 23 but then rises again to 45 percent on the second post-test. One possible explanation for these fluctuations is that in each workshop a special effort was made to distinguish between population education and family planning. The purpose in making this distinction was to divorce population education from an emotion laden area such as sex education. The unanticipated effect can be seen from the results of the immediate post-test.

SUMMARY

Nine population education workshops were held for city school teachers in Baltimore, Maryland during the 1972-73 academic year. The original program schedule was modified two times, at the end of the third workshop and the sixth. Each change resulted in fewer formal presentations, more teacher discussions and greater teacher involvement in the workshop program. From the ideas generated by the workshops, curriculum units suitable for elementary and secondary school students were produced.

An evaluation of the program showed that teachers' knowledge of selected demographic concepts and facts increased between the pre-workshop period and the post-workshop period. The changes were greater in the

later workshops. The changes in knowledge were statistically significant. While there was some regression to pre-test levels, the teachers retained a substantial portion of the knowledge they received when measured a second time after the workshop.

High school teachers showed greater effective changes in knowledge than lower grade teachers. However, interest in population education appears to be wide-spread among all teachers including lower grade teachers. It is suggested that in the future, programs in population education consider conducting separate workshops for teachers of the same or similar grade level.

Acknowledgements: We are grateful to Dr. Melvyn Thorne of the Johns Hopkins University School of Hygiene and Public Health, to Mrs. Mary Craig, Director of the Family Planning Training Institute in Baltimore, to Mr. Carl Speckman, Executive Director of the Planned Parenthood Association of Maryland, Inc. and to the teachers and administrators of the Baltimore City Schools.

REFERENCES

1. Population and the American Future, the Report of the Commission on Population Growth and the American Future, Signet, New York, 1972, p. 125.
2. "United National Educational, Scientific and Cultural Organization: Report of the Special Committee of Experts on the Definition of UNESCO's Responsibilities in the Field of Population," UNESCO, Paris, 6-12, 1967, Studies in Family Planning, No. 28 (April 1968), p. 14.
3. "Population Education," Science for Society, Education Review, Commission on Science Education, Vol. 2, No. 4, (Dec. 1972), American Association for the Advancement of Science.
4. Simmons, Ozzie G., "Population Education: A Review of the Field," Studies in Family Planning, No. 52, (April 1970), pp. 1-5.
5. Wayland, Sloan R., "Family Planning and the School Curriculum," in Berelson, Bernard, et al., Family Planning and Population Programs, The University of Chicago Press, Chicago, 1966.
6. Parke, Robert, Jr. and Westoff, Charles F. (Eds.), The Commission on Population Growth and the American Future, Aspects of Population Growth, Vol. 6, U.S. Government Printing Office, Washington, D.C., 1972, p. 435.
7. Ibid., p. 433.
8. On Attachment "A," we use the notation of Stanley and Campbell where R indicates random assignment, O indicates observation, and X indicates the experiment or test. See Campbell, Donald T. and Stanley, Julian C., Experimental and Quasi-Experimental Designs for Research, Rand McNally & Co., Chicago, 1963.

9. Siegel, Sidney, Nonparametric Statistics for Behavioral Sciences, McGraw-Hill Book Co., New York 1956, pp. 63-67.

APPENDIX A

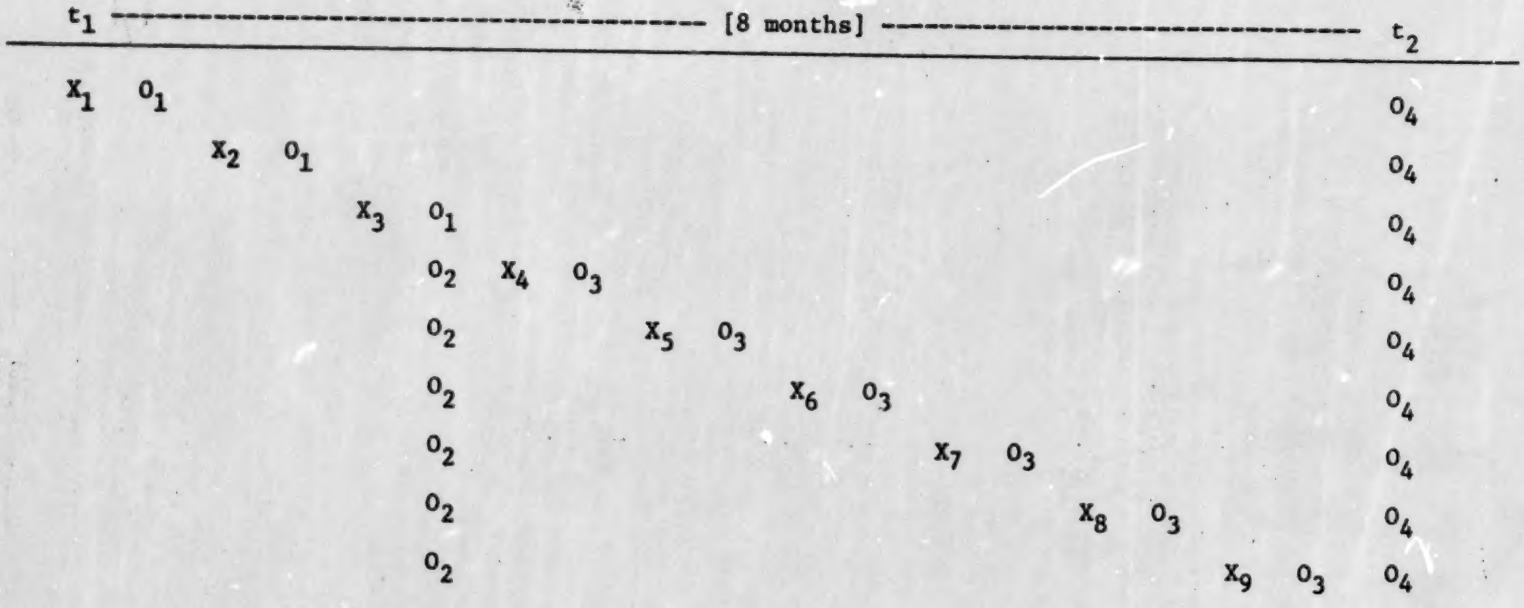
X = Workshop Session

O_1 = Observation post-test only on Workshop Participants 1,2,3

O_2 = Observation pre-test on Workshop Participants 4,5,6,7,8,9

O_3 = Observation post-test on Workshop Participants 4,5,6,7,8,9

O_4 = Observation second post-test on all Workshop Participants



00018

TABLE 1

Characteristics of Teachers

	N	%
SEX:		
Male	87	33
Female	176	67
RACE:		
Black	136	52
White	111	42
Other	8	03
Not Avail.	8	03
AGE:		
21-24	38	14
25-29	76	29
30-34	41	16
35-39	31	12
40-44	30	11
45-49	21	08
50+	24	09
Not Avail.	2	01
MARITAL STATUS:		
Married	165	63
Single	63	24
Divorced	19	07
Separated	11	04
Widowed	3	01
Not Avail.	2	01
GRADES PRESENTLY TEACH:		
K-6	89	34
7-9	99	38
10-12	63	24
Adult Ed.	3	01
Not Avail.	9	03

	N	%
SUBJECTS TEACH:		
Social Studies	10	04
History	72	27
Mathematics	7	03
Science	22	08
English	24	09
Geography	24	09
Home Econ., Shop	12	05
Elem. Subjects	81	31
Not Avail.	11	04
TOTAL YEARS EXPERIENCE AS TEACHER		
1 - 2 years	41	16
3 - 5 "	65	25
6 - 9 "	54	21
10 -14 "	45	17
15+ "	55	21
Not Avail.	3	01
HIGHEST DEGREE		
BA	70	27
BS	91	35
MA, MLA, MAT	33	13
MS, MST	15	06
M.Ed.	40	15
Other degree	3	01
Not Avail.	11	04

TABLE 2

Teachers' Pre and Post Workshop Responses to Knowledge Questions

Questions	Correct Responses				
	Pre-Workshop		Post-Workshop		Total N
	N	%	N	%	
1) What is the current population of Baltimore City?	90	73	107	86	124
2) What is the Current population of the United States?	73	60	92	76	121
3) Is the birth rate of the United States going up, going down or remaining steady?	90	61	107	73	147
4) Is the total population of the United States increasing, decreasing or remaining steady?	103	72	126	87	145
5) In the United States, which areas are growing the fastest in terms of population: urban areas, rural areas, or the suburbs?	100	67	125	83	150

For all five questions, the changes between pre and post-workshop scores are statistically significant ($p < .02$). Data for each question were arranged in a 2 X 2 table as shown below:

$$x^2 = \frac{(|A - D| - 1)^2}{A + D}$$

Before Workshop	After Workshop: −	After Workshop: +
+	A	B
−	C	D

TABLE 3 Effective Change in Knowledge of Teachers, Controlling for Workshop Attended

QUESTIONS	WORKSHOPS	PRE-WORKSHOP TEST		POST-WORKSHOP TEST		EFFECTIVENESS INDEX
		N	Percentage Correct	N	Percentage Correct	$\frac{P_2 - P_1}{100 - P_1} \times 100$
1) Current Population of Baltimore City	1 - 3		(69)*	71	83	45
	4 - 6	64	61	69	77	41
	7 - 9	61	77	71	97	87
	Total	125	69	211	86	55
2) Current population of the United States	1 - 3		(60)*	78	71	28
	4 - 6	66	53	69	75	47
	7 - 9	60	66	73	73	21
	Total	126	60	220	73	33
3) Has the birth rate been going up, down or remaining steady	1 - 3		(59)*	84	67	20
	4 - 6	77	57	78	63	14
	7 - 9	68	62	77	81	50
	Total	145	59	239	70	27
4) Has the total popula- been going up, down or remaining steady	1 - 3		(72)*	83	83	39
	4 - 6	77	79	78	90	52
	7 - 9	66	64	76	87	64
	Total	143	72	237	87	54
5) Which areas have been growing fastest: urban, rural or suburbs	1 - 3		(67)*	85	71	12
	4 - 6	80	64	78	81	47
	7 - 9	68	71	77	84	45
	Total	148	67	240	78	33

* Since Workshops 1 - 3 were not given a pre-test, the total pre-test percentage of workshops 4 - 9 is used for comparison.

00021

TABLE 4 Effective Change in Knowledge of Teachers, Controlling for Grades Presently Teach

QUESTIONS	GRADES PRESENTLY TEACH	PRE-WORKSHOP TEST		POST-WORKSHOP TEST		EFFECTIVENESS INDEX
		N	Percentage Correct	N	Percentage Correct	$\frac{P_1 - P_2}{100 - P_1} \times 100$
1) Current Population of Baltimore City	K - 6	37	49	73	77	55
	7 - 9	48	73	83	90	63
	10 - 12	40	83	55	91	47
	Total	125	69	211	86	55
2) Current population of the United States	K - 6	34	47	74	64	32
	7 - 9	52	67	89	75	24
	10 - 12	40	60	57	81	53
	Total	126	60	220	73	33
3) Has the birth rate been going up, down or remaining steady	K - 6	43	56	82	62	14
	7 - 9	58	60	97	71	28
	10 - 12	44	61	60	78	44
	Total	145	59	239	70	27
4) Has the total population been going up, down or remaining steady	K - 6	43	63	81	84	57
	7 - 9	58	66	96	84	53
	10 - 12	42	91	60	93	22
	Total	143	72	237	87	54
5) Which areas have been growing fastest: urban, rural or suburbs	K - 6	44	52	83	64	25
	7 - 9	60	72	97	85	46
	10 - 12	44	75	60	**	52
	Total	148	69	140	*	33

22000

TABLE 5

Comparison of Percentage Correct Response

QUESTION	PRE-TEST	IMMEDIATE POST-TEST	SECOND POST-TEST
1) Current population of Baltimore City	69 %	86 %	84 %
2) Current population of the U.S.	60	73	63
3) Has birth rate been going up, down or remaining steady	59	70	74
4) Has the total population been going up, down or remaining steady	72	87	70
5) Which areas have been growing fastest, urban, rural or suburbs	67	78	82
6) Population ranked 1st or 2nd major problem facing the U.S. out of 9 possible ranks	30	43	37
7) Percentage of teachers who believe that before students leave high school they should be exposed to discussions concerning methods of family planning	45	23	45
8) In your teaching do you devote some block of time to discussions of population pressures in the world	22	21	40
9) Have you ever discussed during class time problems of urban crowding	24	25	29